**What is claimed is:**

1.  A method of canceling cross talk interference in a received data signal, the method comprising:

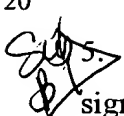   receiving an input signal that includes a primary data signal and a superimposed cross-talk signal;

   iteratively computing a probable cross talk signal; and

   calculating the data signal based at least in part upon the iteratively computed probable cross talk signal.

2.  The method as recited in claim 1 further comprising iteratively computing a probable desired signal estimate, wherein the probable desired signal estimate are used in iteratively computing the probable cross talk estimate and in calculating the data signal.

3.  The method as recited in claim 1 wherein the data signal is a multi-carrier signal.

4.  The method as recited in claim 3 wherein the data signal is a discrete multi-tone signal.

5.  The method as recited in claim 1 wherein the cross-talk signal is from an HPNA signal.

6.  The method as recited in claim 1 wherein the data signal is a VDSL signal.

7.  A method of canceling cross talk interference in a received data signal, the method comprising:

   receiving a symbol block;

   obtaining an estimate of symbols in the symbol block;

   iteratively calculating an expected value for each symbol in the symbol block; and

   selecting symbol values based on final expected values for each symbol.

8.  The method as recited in claim 7 wherein the calculating includes executing soft cancellation of the estimate or the expected value from a preceding calculation.

9.      The method as recited in claim 8 wherein soft cancellation includes subtracting the effect of the estimate from the symbol block to produce an estimate of an interference free value of the input symbol in the symbol block.

10.      The method as recited in claim 8 wherein soft cancellation includes subtracting the expected values from the symbol block to produce an estimate of an interference free value of the input symbol in the symbol block.

11.      The method as recited in claim 8 wherein the calculating includes calculating interference power to account for the uncertainty of the estimate.

12.      The method as recited in claim 11 wherein the calculating includes computing a plurality of probable values, the probable values being based at least in part on the calculated interference power and the soft cancellation.

13.      The method as recited in claim 12 wherein the calculating includes determining the expected value from the plurality of probable values.

14.      The method as recited in claim 13 wherein the symbol block includes primary data signal symbols and superimposed cross talk signal symbols.

15.      The method as recited in claim 14 wherein the primary data signal is a discrete multi-tone signal.

16.      The method as recited in claim 15 wherein at least one tone of the multi-tone signal is zeroed to produce better performance of soft cancellation.

17.      The method as recited in claim 16 wherein the tones that are zeroed are the ones with the largest interference from the superimposed cross talk signal.

18.      The method as recited in claim 14 wherein the primary data signal is a VDSL signal.

19.     The method as recited in claim 14 wherein the superimposed cross talk signal is an HPNA signal.

20.     The method as recited in claim 8 wherein a group of at least two symbols are used when performing soft cancellation.

21.     A method for removing cross talk interference due to a cross talk source that undesirably interferes with the reception of data being transmitted over a transmission medium by coupling to the transmission medium, the method comprising:
        receiving an input signal including a first signal that is superimposed on a second signal, the received signal having a symbol block with input symbols that include a first set of symbols associated with the first signal a second set of symbols associated with the second signal;
        producing an estimate for the input symbols;
        subtracting the effects of the input symbols from the received symbol block;
        computing a probability distribution for each of the input symbols, the computing being based at least in part on the estimate;
        calculating a weighted average from the probability distribution, the weighted average indicating a more likely value for the input symbols.

21.     ~~The method as recited in claim 20 wherein the weighted average is the estimate~~.

22.     The method as recited in claim 20 wherein the computing is based at least in part on a calculated interference power.

23.     The method as recited in claim 20 further including outputting the expected values for each of the symbols of the second signal.